Chapter 1

Command and Control

The essential task of commanders is applying the art and science of war to the command and control of Army forces. The commander's command and control system enables him to use his authority to accomplish the mission and see to the health and welfare of subordinates. Using his command and control system, the commander directs the actions of his forces and imposes his will on the enemy. Through command and control, the commander initiates the actions of, influences, and synchronizes the elements of combat power to impose his will on the situation and defeat the enemy.

NATURE OF COMMAND AND CONTROL

1-1. To exercise effective command and control (C2), commanders must first understand its nature. This includes its definition, its importance and purpose, the relationship between command and control within C2, the components of C2, and how the commander's C2 system supports the commander.

DEFINITION OF COMMAND AND CONTROL

1-2. ***Command and control*** **is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of a mission. Commanders perform command and control functions through a command and control system.** This definition leads to several conclusions (see figure 1-1 on page 1-2):

- The focus of C2 is the commander. Commanders assess the situation, make decisions, and direct actions.
- The goal of C2 is mission accomplishment. The main criterion of success for C2 is how it contributes to achieving that goal. Other criteria may include positioning the force for future operations and using resources effectively.

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- C2 is directed toward forces—combat, combat support, and combat service support. Said another way, forces are the object of C2.
- Commanders exercise authority and direction over forces by establishing command or support relationships. (See FM 3-0.)
- Commanders must dedicate and organize resources for exercising C2. Commanders use these resources to plan and continuously assess operations that the force prepares for and executes.
- The commander's C2 system manages information to produce and disseminate a common operational picture (COP) to the commander, staff, and subordinate forces.
- The C2 system supports the commander in directing forces by transmitting execution information.

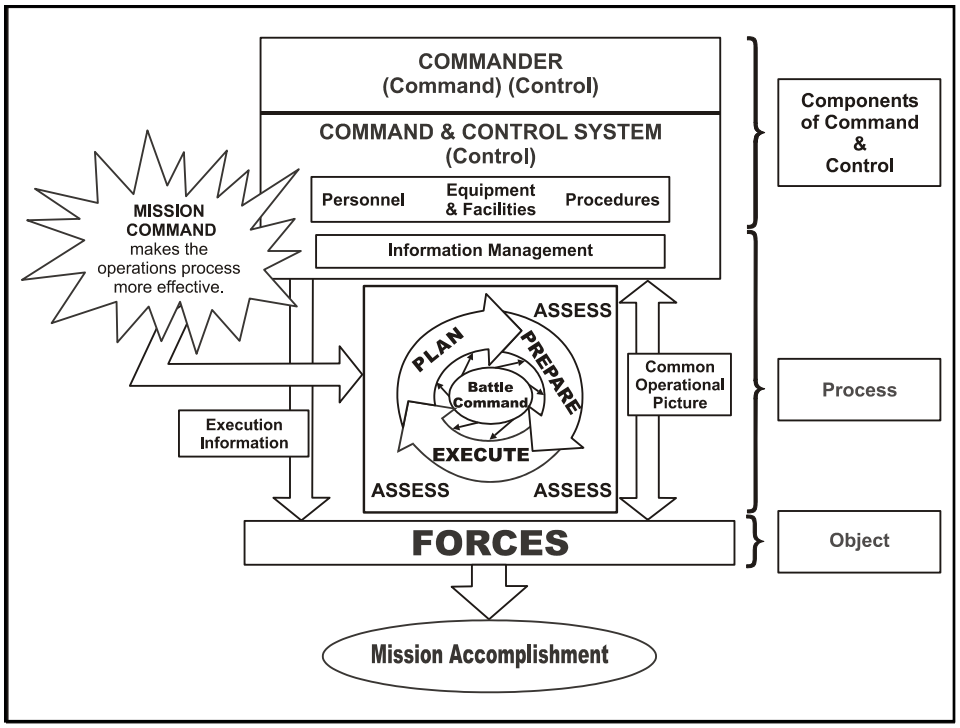


Figure 1-1. Command and Control

1-3. Effective C2 has the following characteristics:

- Ability to identify and react to changes in the situation.
- Ability to provide a continuous, interactive process of reciprocal influence among the commander, staff, and available forces.
- Ability to reduce chaos and lessen uncertainty.

However, even commanders who exercise the most effective C2 cannot eliminate uncertainty and create precise, mechanistic, predictable order.

1-4. Commanders exercise C2 in a dynamic environment, where unexpected opportunities and threats rapidly present themselves. Commanders—through their C2 systems—use the military decisionmaking process to establish their commander's intent and allocate resources. (Commanders at lower echelons use troop leading procedures.) (See FM 5-0.) To implement their decisions,

commanders direct coordinated actions by their forces that together accomplish the mission. Staffs use C2 processes to support their commanders' decisions. They use information management to collect, process, display, store, and disseminate relevant information (RI). They build a COP to provide situational understanding that supports unity of effort throughout the force. (See chapter 3.) Finally, commanders, assisted by their staffs, assess execution and issue orders that adjust their plans to account for changes in the situation.

1-5. C2 is unique among the battlefield operating systems (BOSs): while the other BOSs focus resources against the enemy or environment, C2 focuses resources on integrating the activities of the other BOSs. Even though it involves no killing, detection, or resupply, C2 is a force multiplier and vital to mission accomplishment. C2 accomplishes the following:

- Gives purpose and direction to military operations.
- Integrates the efforts of subordinate and supporting forces, causing separate activities to achieve coordinated effects.
- Determines force responsiveness and allocates resources.

RELATIONSHIP BETWEEN COMMAND AND CONTROL

1-6. Command and control are interrelated. Command resides with commanders. It consists of authority, decisionmaking, and leadership. Command is mostly art but some science. Control is how commanders execute command. It is mostly science but also art.

1-7. Science deals with the study and method of a body of facts and processes based on principles from the physical or material world. Art, as opposed to science, requires expert performance of a specific skill using intuitive faculties that cannot be solely learned by study or education. Doctrine contains a science component that deals with the capabilities and limitations of the physical means used in operations. Knowledge of doctrine's science component is essential. Coupled with experience and training, it forms the basis for the art in human judgment necessary when applying doctrine to a specific situation. However, doctrine cannot be reduced to science; it is inherently art.

1-8. Commanders cannot exercise command effectively without control. Conversely, control has no function without command to focus it. Command is primary, but it is insufficient without control. C2 is not a one-way, top-down process that imposes control on subordinates. C2 is multidirectional, with feedback influencing commanders from below, from above, and laterally.

1-9. Command focuses the practice and organization of the science within control. Control informs the exercise of art within command and regulates the functions of the force. Higher echelon organizations are more complex than lower echelon organizations. Nonetheless, the functions and related requirements of command remain comparatively constant, while control functions increase at each higher echelon. At higher echelons, the impact of commanders is more indirect, while the roles of staffs and other elements of the C2 system are more prominent. This situation requires higher echelon commanders to apply organizational, as well as direct, leadership skills and actions. (FM 22-100 discusses the levels of leadership: direct, organizational, and strategic.)

Command

1-10. *Command* is the authority that a commander in the armed forces lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the accomplishment of assigned missions. It also includes responsibility for health, welfare, morale, and discipline of assigned personnel (JP 0-2). The elements of command are authority, decisionmaking, and leadership.

1-11. **Authority. *Authority* is the delegated power to judge, act, or command.** It includes responsibility, accountability, and delegation. Commanders use the art of command in applying authority as they decide (plan how to achieve the end state) and lead (direct their forces during preparation and execution).

1-12. **Decisionmaking. *Decisionmaking* is selecting a course of action as the one most favorable to accomplish the mission.** It translates the products of the commander's visualization (see chapter 4) into action. Decisionmaking includes knowing if to decide, then when and what to decide, and understanding the consequences of decisions. It is both art and science. Commanders use visualizing, describing, and directing to determine and communicate their decisions.

1-13. **Leadership.** *Leadership* is influencing people—by providing purpose, direction, and motivation—while operating to accomplish the mission and improving the organization (FM 22-100). Commanders lead through a combination of example, persuasion, and compulsion. The leadership of commanders ultimately includes force of will. (See FM 22-100.)

1-14. In any command, only one officer commands. This is embodied in the principle of war, unity of command. Commanders may exercise command through others by delegating authority; however, delegation does not absolve commanders of their responsibilities to the higher commander. Commanders initiate action by issuing lawful orders.

Control

1-15. Success in command is impossible without control. Within command and control, *control* is the regulation of forces and battlefield operating systems to accomplish the mission in accordance with the commander's intent. It includes collecting, processing, displaying, storing, and disseminating relevant information for creating the common operational picture, and using information, primarily by the staff, during the operations process. Control allows commanders to disseminate their commander's intent, execute decisions, and adjust their operations to reflect changing reality and enemy actions. It allows commanders to modify their commander's visualization to account for changing circumstances. Control also allows commanders to identify times and points requiring new decisions during preparation and execution. The elements of control are—

- Information.
- Communication.
- Structure.

1-16. **Information. *Information*, in the general sense, is the meaning humans assign to data.** It is the most important element of control and is divided into the categories of the cognitive hierarchy, based on the meaning assigned to it. (See appendix B.) *Relevant information* is all information of importance to the commander and staff in the exercise of command and control (FM 3-0). It is a commander's most important C2 resource. Intelligence is an important and distinct subset of relevant information; it exists in all categories of the cognitive hierarchy and is integrated throughout C2.

1-17. Information (including intelligence) from all echelons generates the COP. All users share it. By applying judgment to the COP, commanders achieve situational understanding and make decisions.

1-18. *Situational understanding* is the product of applying analysis and judgment to the COP to determine the relationships among the factors of METT-TC (FM 3-0). It facilitates decisionmaking by identifying opportunities for mission accomplishment, threats to mission accomplishment and the force, and gaps in information.

1-19. At the same time the commander uses his situational understanding for C2, he tries to affect the situational understanding of the enemy (limiting its quantity or quality) and tries to influence the perceptions and actions of others (public or private organizations that influence the success of his operation). These considerations directly relate to information operations, as discussed in FM 3-13.

1-20.***Execution information* is information that communicates a decision and directs, initiates, or governs action, conduct, or procedure.** Commanders direct by disseminating execution information, typically as orders and plans. In the process, they receive feedback from subordinates and supporting forces. This information flow creates the interactive influence between commanders and their subordinate forces characteristic of effective C2.

1-21. **Communication.** To *communicate* means to use any means or method to convey information of any kind from one person or place to another (JP 1-02). Communication allows organizations to disseminate and share information among people, elements, and places. Information for control flows vertically (between echelons) and horizontally (among elements of a single echelon). Effective communication is essential to achieving effective C2.

1-22. **Structure.** Commanders establish and maintain control with a structure. **As an element of control, *structure* is a defined organization that establishes relationships among its elements or a procedure that establishes relationships among its activities.** Structures are both internal (such as a headquarters or command post) and external (such as command and support relationships among subordinate forces). Relationships among activities may likewise be internal (techniques and procedures) or external (tactics and plans).

COMPONENTS OF COMMAND AND CONTROL

1-23. C2 consists of two components: the commander and his C2 system. (See figure 1-1.) Commanders use their command and control systems to exercise C2 over forces to accomplish missions.

The Commander

1-24. In units at all levels, the commander is the key individual in command and control. Commanders combine the art of command and the science of control to exercise C2. They create positive command climates that inculcate and foster trust and mutual understanding. They train their subordinates in C2. Using their C2 systems, commanders exercise C2 to direct operations. In every command, the commander is the focal point for penetrating the fog of war, overcoming its unceasing friction, and instilling in soldiers the will to win.

1-25. Commanders, helped by staffs, visualize operations, describe them in terms of the commander's intent and planning guidance, and direct the actions of subordinates within their commander's intent. (See chapter 4.) Commanders cannot perform these leader actions from a computer screen at the command post. They must directly influence operations by their personal presence at times and places of their choosing, and by skillfully using their C2 systems.

Command and Control System

1-26. Commanders cannot exercise C2 alone except in the simplest and smallest of units. Even at the lowest levels, commanders need support, however little, to exercise C2 effectively. At every echelon of command, each commander has a command and control system to provide that support. **A *command and control system* is the arrangement of personnel, information management, procedures, and equipment and facilities essential for the commander to conduct operations.** Digitized information systems now being fielded will increase the complexity of C2 systems but will provide commanders with more timely and accurate RI.

1-27. **Personnel.** The C2 system begins with people. Since combat involves soldiers, no amount of technology can reduce the importance of the human dimension. (See FM 22-100.) Therefore, commanders base their exercise of C2 on human characteristics more than on equipment and procedures. Trained C2 personnel are essential to effective C2 systems; the best technology cannot support C2 without them.

1-28. **Information Management.** *Information management* is the provision of relevant information to the right person at the right time in a usable form to facilitate situational understanding and decisionmaking. It uses procedures and information systems to collect, process, store, display, and disseminate information (FM 3-0). Information management consists of RI and information systems (INFOSYS). *Information systems* are the equipment and facilities that collect, process, store, display, and disseminate information. These include computers—hardware and software—and communications, as well as policies and procedures for their use (FM 3-0).

1-29. **Procedures.** Procedures are standard and detailed courses of action that describe how to perform a task (FM 3-90). Procedures govern actions within a C2 system to make it more effective and efficient. Adhering to procedures minimizes confusion, misunderstanding, and hesitance as commanders make frequent, rapid decisions to meet operational requirements.

1-30. **Equipment and Facilities.** Equipment and facilities provide sustainment and a work environment for the other elements of a C2 system. Facilities vary in size and complexity. At the lowest echelon, the "facility" may be the commander's bunker or vehicle. At the highest echelons, facilities are large and complex.

1-31. **Digitization's Effects on C2 Systems.** As the Army moves towards more digitized INFOSYS, the manner in which these emerging digital technologies combine has the potential to provide more timely, accurate, and reliable RI to commanders. This RI will allow commanders to make faster and better decisions.

1-32. Digital INFOSYS also support efficient and effective execution by reducing the human labor needed to organize information and put it in a usable form. Used correctly, their capabilities allow commanders and staffs to spend more time and energy on the art and human dimensions of C2. These powerful capabilities support mission command. (See paragraph 1-67.)

1-33. Staffs provide commanders with RI in usable forms that help commanders achieve accurate situational understanding. Timely, relevant, and usable RI enables commanders to make timely decisions and allows staffs to rapidly synchronize, integrate, and fuse actions in accordance with the commander's intent. Staff elements use their respective BOS INFOSYS to manage BOS-specific RI. They apply continuous analysis to improve the quality of RI they give commanders.

EXERCISING COMMAND AND CONTROL

1-34. Commanders must place their C2 system into action to exercise C2. Exercising C2 takes place dynamically throughout the operations process. (See FM 3-0.) The operations-process activities of planning, preparing for, executing, and continuously assessing are cyclical and continuous. They do not necessarily occur sequentially. (See figure 1-2 on page 1-8.) For example, while preparing for or executing one operation, units plan branches and sequels for the next operation. At any time, subordinate units of the same command may be performing different operations-process activities.

1-35. The operations process focuses on executing rather than planning. Modern INFOSYS reduce the time needed to plan. This allows commanders to allocate more time for preparation and to execute sooner. INFOSYS do this in two ways: First, they allow near simultaneous planning—collaborative and parallel—among echelons. This capability compresses the time needed for all echelons to complete their plans. Second, because INFOSYS provide nearly continuous updates to a more accurate COP, forces can execute faster with less detailed plans. High quality COP updates make effective incremental adjustments possible during execution. They also allow commanders to act faster to counter emerging threats or seize opportunities as they identify them rather than continuing to execute a plan that does not fit the new situation. In addition, modern INFOSYS allow staffs to rapidly resynchronize forces and functions. This capability allows commanders to adjust plans with a minimal loss of combat power, making Army forces more agile today than previously.

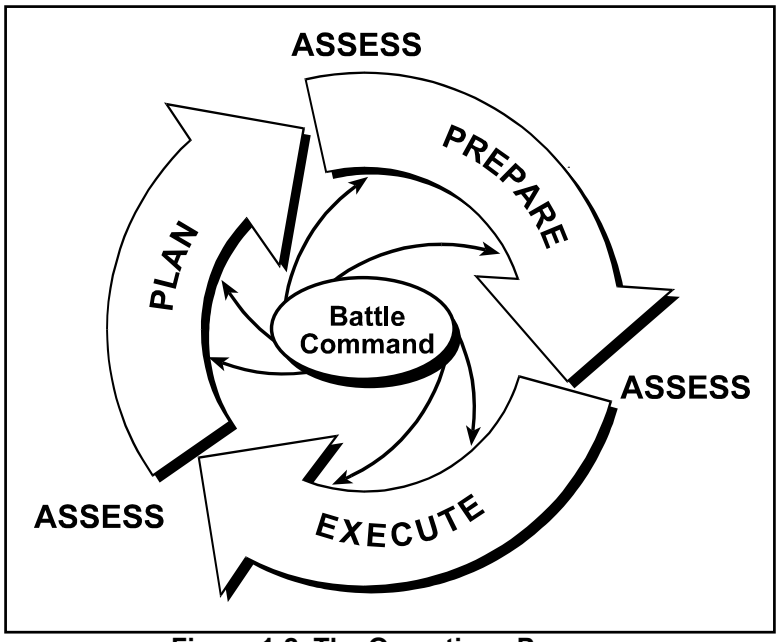


Figure 1-2. The Operations Process

1-36. Commanders follow a continuous cycle of **see first**, **understand first**, **act first**, and **finish decisively** to decrease the options available to the enemy and create or preserve options for their own forces. (See figure 1-3.) Commanders, assisted by their C2 systems, aim to **see first** within the battlespace. Next, collaboration, discussion, and sharing of knowledge related to the COP allow them to **understand first**. Understanding includes discerning the intent of enemies and others who attempt to shape Army force operations to their benefit or to friendly disadvantage. Seeing and understanding first are necessary but not sufficient without **acting first**. Commanders, using their C2 systems, synchronize and integrate their combined arms teams while directing execution within their commander's intent and planning guidance. Finally, Army forces **finish decisively** by applying relentless pressure, following up, and exploiting initial blows. Throughout operations, subordinates exercise subordinates' initiative. (See paragraph 1-68.)

ENVIRONMENT OF COMMAND AND CONTROL

1-37. Military operations are complex—a complex friendly system fiercely competes with a complex enemy system. Each system consists of numerous components that may also be complex systems, each interacting and affecting many other systems. The results of those interactions are complicated, often unpredictable, and perhaps uncontrollable. Thus, military operations may defy orderly, efficient, and precise control. The following four dimensions of the C2 environment help explain the complex nature of military operations:

- Human dimension.
- Uncertainty.
- Time.
- Land combat operations.

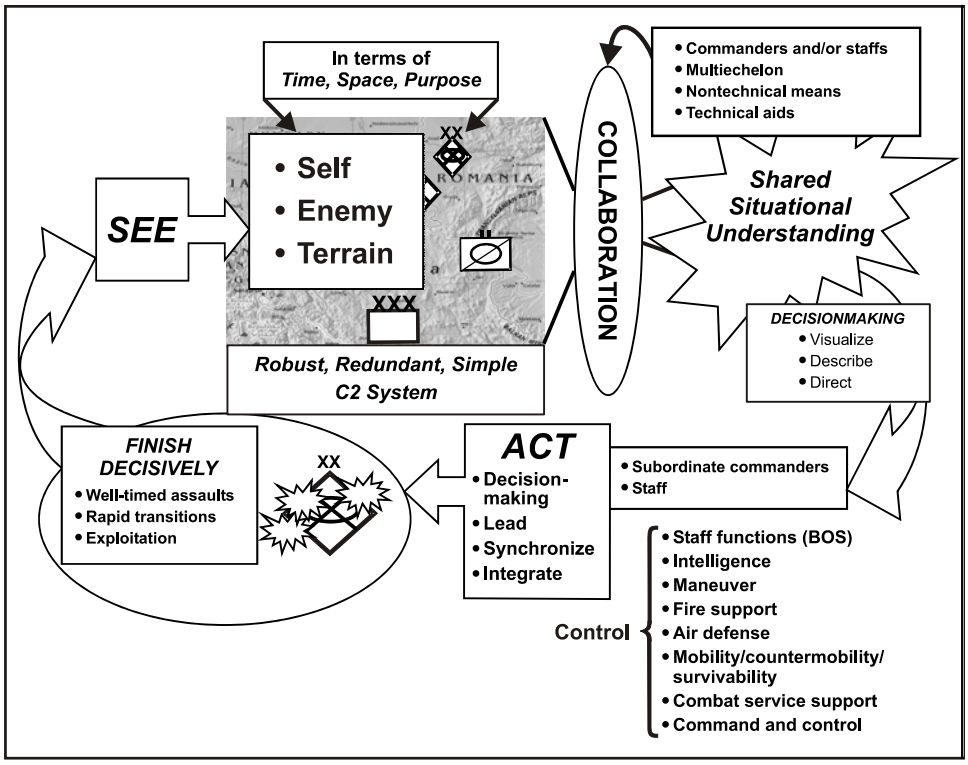


Figure 1-3. The Thought Process

HUMAN DIMENSION

1-38. The most important dimension of the C2 environment is the human dimension. People are the basis of military organizations, and military operations occur as human interactions. Humans are integral to C2 at all levels: commanders, personnel in the C2 system, and forces the commander directs. INFOSYS help soldiers accomplish missions effectively, but do not eliminate or lessen the role of humans. The human mind has a capacity for judgment, intuition, and imagination far superior to the analytic capacity of the most powerful computer. This aspect makes command more an art than a science. Effective C2 accounts for the characteristics and limits of human nature. It exploits and enhances uniquely human skills. No amount of technology or equipment can supplant the human spirit and reasoned judgment, especially those of commanders.

1-39. Battle is chaotic—unexpected problems occur. The most important factor contributing to this chaos is the actions of enemies actively trying to accomplish their missions by defeating friendly forces. This factor alone creates stress. A capable enemy tries to maximize the level of stress on friendly forces. That, combined with the often nonstop tempo of modern operations raises the stress on individuals and systems to levels that may become crippling unless planning includes countermeasures. Even in stability operations and support operations—where there is less potential for the moments of stark terror that exist in battle—constant tension over time can lead to unexpected problems. Effective commanders solve these problems themselves where possible, allowing higher-level commanders to focus on

broader operations. However, they coordinate their solutions with other units or echelons to synchronize them with the actions of those elements.

1-40. Stress affects all soldiers, from commanders on down. The harsh environment of operations produces physiological and psychological effects. Hardened soldiers can persevere physically if their commanders train, prepare, and care for them in such conditions. However, the harsh environment of operations is more likely to have a greater psychological than physical effect on soldiers. Since the mind directly affects the soldier's will to win, soldiers must prepare mentally for the stress of operations, especially combat. If not countered, stress causes human error, increasing uncertainty or increasing time required for actions to take effect. Effective C2 also recognizes and addresses the effects of stress on individual soldiers and units. (FM 6-22.5 discusses stress, its effects, and preventive measures. FM 22-100 discusses leader responsibilities for handling stress in soldiers and units. It also outlines methods to create effective, combat-ready soldier teams.)

UNCERTAINTY

1-41. The defining problem of command and control is the need to deal with uncertainty, another dimension that makes C2 more art than science. In the words of Carl von Clausewitz,

> *War is the realm of uncertainty; three-quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty.*

Sources of Uncertainty

1-42. The fundamentally complex and interactive nature of military operations generates uncertainty. Military operations are human endeavors shaped by human nature and subject to the unpredictability of human behavior. Even the behavior of friendly forces is often unpredictable because of the effects of stress on soldiers. Humans sometimes make mistakes as they interact. In addition, each military operation is a complex activity composed of smaller operations, each involving many individuals and systems acting simultaneously in complex environments. Factors such as the urban environment, restrictive rules of engagement, and political considerations produce unanticipated and unintended consequences that result in additional uncertainty.

1-43. Military operations are struggles between independent human wills. Commanders face thinking, uncooperative, and adaptive enemies. They can never predict with certainty how enemies will act and react, or how events will develop. Enemies use methods like denying information to friendly forces, disseminating disinformation, and executing military deception operations to attempt to shape the area of operations and reduce or neutralize friendly force capabilities. Simultaneously, friendly forces use information operations to do the same to the enemy. (See FM 3-13.) These actions interact to create an environment of extraordinary uncertainty.

Information Management and Uncertainty

1-44. C2 systems strive to reduce uncertainty to manageable levels by collecting and processing information, and providing commanders only the information they need to make decisions. However, effective commanders accept that uncertainty can never be eliminated. Therefore, commanders and their C2 systems must be able to function effectively in uncertain environments. The best method of doing this is through decentralized execution of operations. Decentralized execution—based on a common understanding of the commander's intent, mission orders, and sharing available information—allows lower level commanders to cope with uncertainty by exercising subordinates' initiative.

1-45. Well-trained staffs within mature C2 systems use information management to reduce uncertainty. (See chapter 3.) The goal is to provide commanders with knowledge based on RI to which they can apply judgment to reach situational understanding and discern operational advantages. To do this, commanders and staffs balance art and science within information management. Above all, decreased uncertainty depends not only on the quantity or quality of information but also on the analysis of it. These limitations are especially true of intelligence, which is based on information collected from an uncooperative enemy.

1-46. Faulty information management may increase uncertainty. Information only reduces uncertainty if it contributes to knowledge or understanding. Neither humans nor systems can effectively accept any more than a certain amount information. Beyond that point, more information only leads to information overload, a situation in which incoming information—no matter how relevant or accurate—may not be understood.

Solutions to Uncertainty

1-47. There are two basic solutions to the problem of uncertainty: one is information-focused, the other action-focused.

1-48. The information-focused solution reduces uncertainty at the higher echelons by collecting more and better data, and increasing the information-processing capability at the top. This solution results in greater uncertainty at lower echelons because those echelons either do not have the information or receive it later than the higher ones. This approach requires greater control of lower-level commanders and more detailed orders.

1-49. The action-focused solution reduces uncertainty evenly throughout the force. Commanders train their organizations to manage and cope with uncertainty as part of normal operations. They delegate authority for decision-making to those levels that can acquire and process the information adequately. This solution may result in less certainty at higher levels.

1-50. The action-focused solution leads to more general, flexible orders and a more agile force. The information-focused solution may not be as efficient as the action-focused solution because even increased information collection does not provide absolute certainty. Although focusing information processing at the top can produce enough information to execute operations, it may cost the efficiency and time. Commanders use aspects of both

solutions. They do not totally exclude one or the other. Tension arises between the two solutions only when commanders allow the quest for more and better information to delay their decisions.

TIME

1-51. The dimension of time is important only in relation to friendly forces' accomplishing the mission. In combat operations, how fast the enemy can react effectively to friendly actions is the primary aspect of time commanders consider. In stability operations and support operations, other considerations, such as forecasted environmental effects, determine the importance of time.

1-52. Time affects C2 in two major ways: First, friendly forces must be able to conduct (plan, prepare, execute, and assess) operations faster than the enemy. Second, a C2 system can theoretically reduce uncertainty by continuing to gather and process information; however, the value of information about the enemy decreases with age—changes in the situation can make it irrelevant. A rapid tempo (rate of military action) limits the amount of information that can be collected and processed before a decision is required. Delaying decisions beyond that limit allows enemies to act more quickly than friendly forces and may give them the initiative. (See chapter 6.)

1-53. All actions require a certain amount of time to execute. This time can only be reduced to some absolute minimum. If the time friendly forces need to act is less than the enemy reaction time, there is no problem. If it is greater, commanders seek another solution—by adjusting the resources, the concept, or even the mission. (See the discussion of the *observe-orient-decide-act* [OODA] cycle in appendix A.)

1-54. An effective C2 system allows friendly commanders and their forces to use time more effectively than the enemy. The need of commanders to balance reduction of uncertainty with tempo is the essence of the C2 challenge. Enemy commanders have the same goal and face the same problems. The goal is to achieve relative advantage in timeliness over them. Commanders who follow C2 practices that provide information to lower levels of command allow their subordinates to exercise initiative and make better decisions. Their forces operate faster and more effectively than those of the enemy.

LAND COMBAT OPERATIONS

1-55. The Army's primary mission is to organize, train, and equip forces to conduct prompt and sustained land combat operations. (See FM 1.) These forces include Army aviation units as well as ground units. Army C2 doctrine (which applies to the airspace over the land area of operations) is compatible with joint doctrine and takes into account the nature of land operations and land forces.

1-56. Army combat operations usually involve destroying or dislocating enemy forces on land or taking key land objectives that reduce the enemy's ability to conduct operations. Four characteristics distinguish land combat operations:

- **Scope.** Land combat involves *close combat*—combat carried out with direct fire weapons, supported by indirect fire, air-delivered fires, and

nonlethal engagement means. Close combat defeats or destroys enemy forces, or seizes and retains ground (FM 3-0). Land combat contains many more interactions between friendly and enemy forces at lower levels than any other form of combat.

- **Duration.** Land combat is repetitive and continuous. With few exceptions (such as ambushes or raids), Army forces do not strike and return to a base; they remain in contact with enemy forces almost continuously. Doing this allows them to destroy enemies or render them incapable or unwilling to conduct further action. The duration of land combat operations contributes to the large number of interactions between friendly and enemy forces.
- **Terrain.** Land combat takes place in the densest of all combat media—the ground environment. The complex variety of natural and manmade features of the ground environment contrasts significantly with the relative transparency of air, sea, and space. In addition to considering the visibility limits resulting from clutter and other terrain features, effective plans for land combat also account for the effects of weather and climate.
- **Permanence.** Land combat frequently requires seizing or securing terrain. With control of terrain comes control of its population and productive capabilities. Thus, Army forces in land combat make permanent the often temporary effects of other operations.

These characteristics increase the uncertainty of the environment in which Army forces conduct operations. Commanders prepare their forces to persevere through casualties and setbacks. They direct logistic support that anticipates losses and consumption.

1-57. The scope of land combat reaches to the lowest tactical land-force element—its irreducible unit of maneuver and action—the individual soldier. These soldiers number in the thousands for a brigade commander and the tens of thousands for an operational-level commander. Soldiers receive orders passed through multiple echelons of command. They must understand the prescribed limits within which to exercise subordinates initiative. In addition, lower-level commanders have much less experience and professional education than higher-level commanders. However, they must understand the higher-level commander's intent and the effects of their actions on the operations of the entire force. These factors produce an extremely complex situation. A commander's C2 system must communicate execution information in an understandable form to the command's lowest levels and disseminate the COP to all echelons. It must allow commanders at all levels to share a common understanding of the situation and higher commander's intent.

1-58. This situation means that reports transmitted through several layers may result in an inaccurate reception or interpretation. Communications with subordinates may be tenuous, and information about subordinate formations may be vague, as the enemy tries to degrade or disrupt communications and the environment limits their reliability. The fielding of digital INFOSYS has a goal of reducing these effects and providing the capability to produce an accurate COP in spite of them.

1-59. The Army's doctrine of full spectrum operations emphasizes shattering the enemy's ability and will to resist, and destroying the coherence of his operations. Army forces accomplish these things by controlling the nature, scope, and tempo of an operation, and striking simultaneously throughout the area of operations to control, neutralize, and destroy enemy forces and other objectives. The Army's C2 doctrine supports its operations doctrine. It balances coordination, personal leadership, and tactical flexibility. It stresses rapid decisionmaking and execution, including rapid response to changing situations. It emphasizes trust and mutual understanding among superiors and subordinates.

1-60. Commanders seek to conduct operations at a tempo and intensity the enemy cannot match. To achieve this, Army C2 doctrine supports decentralized operations. Decentralized operations contribute to retaining the tactical initiative. They require disseminating information to the lowest possible level so subordinates can exercise subordinates' initiative. Effective C2 that emphasizes subordinates' initiative as the starting point for seizing the tactical initiative. Army C2 doctrine gives commanders the concepts needed to exercise this kind of C2.

CONCEPT OF COMMAND AND CONTROL

1-61. Historically, commanders have employed variations of two basic C2 concepts: mission command and detailed command. (See figure 1-4.) Militaries and commanders have frequently favored detailed command, but an understanding of the nature of war and the patterns of military history point to the advantages of mission command. Mission command is the Army's preferred concept of command and control.

1-62. Two hundred years ago, C2 practices were consistent with the concept of detailed command. C2 focused on searching for accurate information about enemy and friendly forces. A commander could generally see the entire battlefield and most of his army, as well as the enemy's. Battles were often concluded in one day. (Examples include the battles of Arbela [page vii] and Kunersdorf [page 2-27].) This philosophy served well in earlier times; however, the growth of armies in size and complexity required commanders to command in battles that lasted longer than a day on battlefields that extended beyond their direct view. This change began in Napoleon's time. Napoleon developed an organizational method—the *corps d'armee* system—to reduce the uncertainty and complexity while still employing detailed command methods. (See the Austerlitz vignette [page 3-24].)

1-63. However, by the American Civil War, this trend was irreversible. This led American commanders in the latter years of the Civil War to employ techniques similar to mission command. (See the Chancellorsville vignette (page 1-21].) By 1870, armies in Europe recognized the same trend, and the first formulation of a concept of mission command, a German concept later called *Auftragstaktik*, formally emerged. Later developments in technology, such as the telephone, led some commanders to attempt to exercise C2 through detailed command. However, the failure of detailed command—in World War I by all combatants and at the beginning of World War II by the French Army—led the German and American armies to use mission

command throughout World War II. (See the Ruhr vignette [page 2-30].) After World War II, the Israeli army developed into a proficient practitioner of mission command.

Mission Command		Detailed Command
• Probabilistic • Unpredictable	Assumes war is	• Deterministic • Predictable
• Disorder • Uncertainty	Accepts	• Order • Certainty
• Decentralization • Spontaneity • Informality • Loose rein • Self-discipline • Initiative • Cooperation • Acceptable decisions faster • Ability all echelons • Higher tempo	Tends to lead to	• Centralization • Coercion • Formality • Tight rein • Imposed discipline • Obedience • Compliance • Optimal decisions, but later • Ability focused at the top
• Implicit • Vertical and horizontal • Interactive	Communication types used	• Explicit • Vertical • Linear
• Organic • Ad hoc	Organization types fostered	• Hierarchic • Bureaucratic
• Delegating • Transformational	Leadership styles encouraged	• Directing • Transactional
• Art of war • Conduct of operations	Appropriate to	• Science of war • Technical/procedural tasks

Figure 1-4. Concepts of Command and Control

Von Moltke and *Auftragstaktik*

Helmuth von Moltke (1800-1891) was appointed Chief of the Prussian (later German) General Staff in 1857. One of the important concepts he promulgated was *Auftragstaktik* (literally, "mission tactics"); a command method stressing decentralized initiative within an overall strategic design. Moltke understood that, as war progressed, its uncertainties diminished the value of any detailed planning that might have been done beforehand. He believed that, beyond calculating the initial mobilization and concentration of forces, "…no plan of operations extends with any degree of certainty beyond the first encounter with the main enemy force." He believed that, throughout a campaign, commanders had to make decisions based on a fluid, constantly evolving situation. For Moltke, each major encounter had consequences that created a new situation, which became the basis for new measures. *Auftragstaktik* encouraged commanders to

be flexible and react immediately to changes in the situation as they developed. It replaced detailed planning with delegation of decisionmaking authority to subordinate commanders within the context of the higher commander's intent. Moltke realized that tactical decisions had to be made on the spot; therefore, great care was taken to encourage initiative by commanders at all levels.

Moltke believed that commanders should issue only the most essential orders. These would provide only general instructions outlining the principal objective and specific missions. Tactical details were left to subordinates. For Moltke, "The advantage which a commander thinks he can attain through continued personal intervention is largely illusory. By engaging in it he assumes a task that really belongs to others, whose effectiveness he thus destroys. He also multiplies his own tasks to a point where he can no longer fulfill the whole of them." Moltke's thought, summarized in these statements, lies at the heart of mission command.

1-64. As figure 1-4 shows, the concepts of detailed command and mission command represent the theoretical extremes of a C2 spectrum. While the US Army's preferred C2 concept is mission command, in practice no commander relies on purely detailed or purely mission command techniques. The degree to which commanders incorporate detailed command techniques into their practice of mission command depends on a variety of factors. These may include the nature of the environment or task, the qualities of the staff and subordinate commanders, and the nature and capabilities of the enemy.

DETAILED COMMAND

1-65. Detailed command stems from the belief that success in battle comes from imposing order and certainty on the battlefield. A commander who practices detailed command seeks to accomplish this by creating a powerful, efficient C2 system able to process huge amounts of information, and by attempting to reduce nearly all unknowns to certainty. Detailed command centralizes information and decisionmaking authority. Orders and plans are detailed and explicit, and successful execution depends on strict obedience by subordinates, with minimal decisionmaking and initiative on their part. It emphasizes vertical, linear information flow, where information flows up the chain of command and orders flow down. The commander ensures compliance with all details of the plan by imposing discipline and coordination from above. Detailed command achieves unity of effort through detailed, prescriptive techniques.

1-66. Commanders who use this C2 concept command by personal direction or detailed directive. They make many—often too many—decisions personally, not all of which are the important ones. Often, they make these decisions prematurely. Detailed command techniques may result in a high degree of coordination during planning. However, during execution, they leave little room for independent adjustments by subordinates; subordinates must consult the higher commander before deviating from the plan. Detailed command is ill-suited to taking advantage of rapidly changing situations. It does not work well when the communications and information flow is disrupted. It inhibits the judgment, creativity, and initiative required for success in fluid military operations. Because of these disadvantages, mission command is a better C2 concept in almost all cases.

MISSION COMMAND

1-67. ***Mission command*** **is the conduct of military operations through decentralized execution based on mission orders for effective mission accomplishment. Successful mission command results from subordinate leaders at all echelons exercising disciplined initiative within the commander's intent to accomplish missions. It requires an environment of trust and mutual understanding.** Successful mission command rests on the following four elements:

- Commander's intent.
- Subordinates' initiative.
- Mission orders.
- Resource allocation.

Commander's Intent

1-68. The *commander's intent* is a clear, concise statement of what the force must do and the conditions the force must meet to succeed with respect to the enemy, terrain, and desired end state (FM 3-0). It focuses on achieving the desired end state and is nested with the commander's intent of the commander two levels up. Commanders formulate and communicate their commander's intent to describe the boundaries within which subordinates may exercise initiative while maintaining unity of effort. To avoid limiting subordinates' freedom of action, commanders place only minimum constraints for coordination on them.

Subordinates' Initiative

1-69.***Subordinates' initiative*** **is the assumption of responsibility for deciding and initiating independent actions when the concept of operations no longer applies or when an unanticipated opportunity leading to achieving the commander's intent presents itself.** Subordinates decide how to achieve their missions within delegated freedom of action and exercise initiative during execution, but they have an absolute responsibility to fulfill the commander's intent. They are also required, not just permitted, to exercise initiative when an opportunity or threat presents itself.

Mission Orders

1-70. ***Mission orders*** **is a technique for completing combat orders that allows subordinates maximum freedom of planning and action in accomplishing missions and leaves the "how" of mission accomplishment to subordinates.** Mission orders state the task organization, commander's intent and concept of operations, mission of the force, subordinates' missions, and minimum essential coordinating instructions. A mission assigned to a subordinate includes all the normal elements (who, what, when, where, and why), with particular emphasis on the purpose (why). It, along with the commander's intent, guides subordinates' initiative. A properly written mission statement and commander's intent are critical when using mission orders. This technique does not mean commanders do not supervise subordinates' execution; however, they intervene only to direct changes to the concept of operations, coordinate, restore operations, or exploit success. A poorly written mission statement or unclear commander's intent requires the

commander to intervene in subordinate operations more frequently. Such intervention inhibits subordinates' initiative and reduces the force's agility.

Resource Allocation

1-71. Commanders allocate enough resources for subordinates to accomplish their missions. In the context of mission command, commanders consider information a resource—comparable to more traditional ones, such as soldiers and materiel—and share it through all levels of command.

Exercising Mission Command

1-72. Mission command concentrates on the objective of an operation, not on how to achieve it. It emphasizes timely decisionmaking, understanding of the higher commander's intent, and the clear responsibility of subordinates to act within that intent to achieve the desired end state. With the commander's intent to provide unity of effort, mission command relies on decentralized execution and subordinates' initiative. Mission command requires a common understanding of Army doctrine, as well as of the situation and commander's intent.

1-73. The fundamental basis of mission command is creating trust and mutual understanding between superiors and subordinates. This is more than just control: commanders must establish a command climate of trust and mutual understanding that encourages subordinates to exercise initiative. Mission command applies to all operations across the spectrum of conflict.

1-74. Mission command counters the uncertainty of war by reducing the amount of certainty needed to act. Commanders guide unity of effort through the commander's intent, mission orders, and the CCIR. Commanders hold a "loose rein," allowing subordinates freedom of action and requiring them to exercise subordinates' initiative. Commanders make fewer decisions, but this allows them to focus on the most important ones. The command operates more on self-discipline than imposed discipline. Because mission command decentralizes decisionmaking authority and grants subordinates significant freedom of action, it demands more of commanders at all levels and requires rigorous training and education.

1-75. Mission command tends to be decentralized, informal, and flexible. Orders and plans are as brief and simple as possible, relying on implicit communication—subordinates' ability to coordinate and the human capacity to understand with minimal verbal information exchange. By decentralizing decisionmaking authority, mission command increases tempo and improves the subordinates' ability to act in fluid and disorderly situations. Moreover, relying on implicit communication makes mission command less vulnerable to disruption of communications than detailed command.

1-76. On the surface, the characteristics of stability operations and support operations appear to favor detailed command. The aim of these operations is often persuasion rather than destruction of an enemy. Missions are more likely accomplished by preemption, dislocation, and disruption than by combat operations. Available information appears more consistent and clear, if not better, than that received during offensive and defensive operations.

There are normally fewer crises and more time available to make decisions and take action.

1-77. However, the environment of stability operations and support operations is often as complex—if not as deadly—as that encountered during offensive operations and defensive operations. Both occur in dynamic environments that may involve applying doctrine in unfamiliar ways. Both are often time- and manpower-intensive, and both are often conducted in noncontiguous areas of operations. Both, but especially support operations, are often interagency.

1-78. Achieving unity of effort in this environment is difficult but essential. A clear commander's intent that lower-level leaders can understand is key to maintaining unity of effort. Circumstances of remote locations or rapidly changing situations can force commanders to conduct decentralized operations, and soldiers must exercise subordinates' initiative to solve problems as they arise. One isolated, thoughtless action can undo months of patient work, potentially alienate the local populace, and benefit the belligerent's cause in stability operations or diminish the effects of support operations.

1-79. Mission command is appropriate for operations in the often politically charged atmosphere and complex conditions of these operations. Commanders must explain not only the tasks assigned and their immediate purpose, but also prescribe an atmosphere to achieve and maintain throughout the campaign. They must explain what to achieve and communicate the rationale for military action throughout their commands. Doing this allows junior commanders and their soldiers to gain insight into what is expected of them, what constraints apply, and, most important, why the mission is being undertaken.

1-80. Detailed command is ill-suited to the conditions of stability operations and support operations. Commanders using its techniques try to provide guidance or direction for all conceivable contingencies, which is impossible in dynamic and complex environments. Under detailed command, subordinates must refer to their headquarters when they encounter situations not covered by the commander's guidance. Doing this increases the time required for decisions and delays acting. In addition, success in interagency operations often requires unity of effort, even when there is not unity of command. In such an environment, detailed command is impossible. In contrast to the detailed instructions required by detailed command, mission command calls for a clear commander's intent. This commander's intent provides subordinates guidelines within which to obtain unity of effort with agencies not under military command. Subordinates then act within those guidelines to contribute to achieving the desired end state.

DIGITIZATION AND MISSION COMMAND

1-81. Digitization is the Army's program for leveraging information-age technologies. Current and future INFOSYS improvements, such as the Army Battle Command System (ABCS) and Battle Command on the Move (BCOTM), use digitization to enhance commanders' practice of the art of command and facilitate the science of control. The digitized INFOSYS the Army is building actually facilitate and strengthen mission command, even

though they can be used to impose detailed command. Their capabilities have the potential for creating conflict. A commander at almost any level can apparently reach down and control the actions of an individual soldier at any time. Doing this, however, misuses the technology. Effective commanders focus on the overall operations of their force, not the individual actions of its parts. The information that digital INFOSYS make available allows commanders to know what their subordinates are doing faster and in more detail than previously. Commanders can use this information to revisualize the overall operation and take advantage of opportunities that results from their subordinates' actions, in keeping with mission command.

1-82. Commanders have faced this challenge before. In the late 1960s, command doctrine stated that the senior leader on the ground had the best perspective, and that commanders should lead from the front. The helicopter and PRC-25 radio challenged this doctrine. This technology led some commanders to believe they could best control a fight on the ground from a command post overhead. Many succumbed to this temptation. Helicopters gave airborne commanders the illusion of having perfect knowledge of the ground situation. Lightweight radios led them to believe they could reach down and influence the battle directly, rather than allowing their subordinates to do their jobs. The predictable results were erosion of trust and a weakening of the chain of command, along with a decline in junior officer and NCO willingness to initiate action without orders. Although there may have been a short-term increase in apparent combat effectiveness of small units, the long-term effects of that misapplication of technology were devastating.

1-83. The perception of digitization in the Army is that it might reduce the importance of the art of command. Some believe that providing commanders better, more accurate, and timely information and intelligence would allow them to rely less on intuition. With more accurate information, commanders would be better able to visualize the current and future states and dictate the terms, location, and tempo of the battle, even at lower echelons. If digital INFOSYS do provide these capabilities, the concept of mission command could be called into question. However, this line of questioning confuses the art of command with the science of control.

1-84. Information technologies are already affecting the elements of control: information, communication, and structure. However, they do not detract from the elements of command: authority, decisionmaking, and leadership. In fact, commanders can use digital INFOSYS to increase the effectiveness of decisionmaking and leading. Modern INFOSYS allow commanders to devote more time to the art and human sides of command, and to support their achievement and use of visualization. These technologies and capabilities also allow all BOSs across many distributed locations and echelons to share information and collaborate when analyzing that information. Never have commanders had more ability to exercise increased direct control, yet never have they had less reason to do so. Information is the springboard of initiative and independent action. Using information technologies to empower subordinates has the potential to increase the tempo of operations beyond the level at which adversaries can hope to respond.

1-85. Modern information systems (INFOSYS), such as the Army Battle Command System (ABCS), substantially enable mission command. Above all,

they allow commanders to provide a COP to subordinates to guide the exercise of subordinates' initiative. The COP conveys the higher commander's perspective and facilitates subordinates' situational understanding. This situational understanding provides a context for subordinates to use when assessing information obtained at their level. The COP allows subordinates to visualize intuitively the effects of possible decisions on the rest of the higher commander's operation and accept or mitigate the costs of their decision. As subordinates act, ABCS allows them to report the results of their actions to their commander. Higher commanders can monitor subordinates' actions and, with their staffs, resynchronize operations rapidly to exploit opportunities resulting from subordinates' initiative.

1-86. Well-trained staffs with solid procedures can use modern INFOSYS to facilitate understanding of the commander's intent. These INFOSYS provide graphic displays and the means to obtain feedback from subordinates. This feedback becomes a two-way data flow that leads to a shared situational understanding among all participants. This shared understanding forms the context for exercising subordinates' initiative. Commanders can use the same capabilities to confirm or correct subordinates' understanding. This increases opportunities to exercise subordinates' initiative.

1-87. Digitization can substantially support the art of command by providing commanders better, more accurate, and timely information. This information gives commanders better situational understanding. Better situational understanding allows commanders to focus their intuition on fewer unknowns and better visualize the current and future end state. Modern INFOSYS allow commanders to identify the unknowns and either precisely direct information collection or accept the uncertainty in the interests of timeliness. Accurate information allows commanders to dictate the terms, location, and tempo of operations. It enables them to spend more time and energy leading and motivating soldiers.

HISTORICAL VIGNETTE—CHANCELLORSVILLE

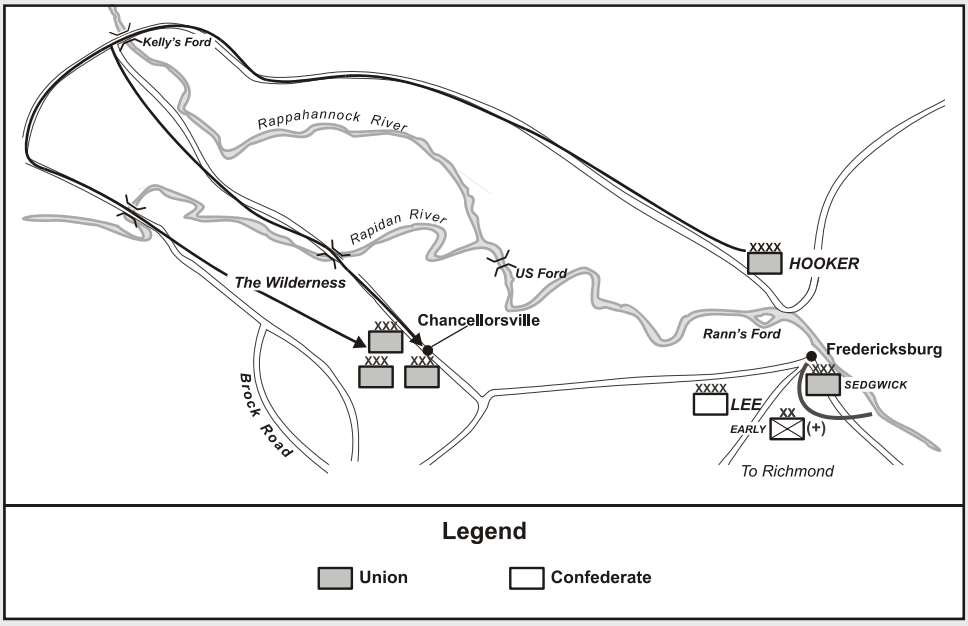
1-88. The following historical vignette illustrates how one commander successfully used all four mission command techniques—commander's intent, subordinates' initiative, mission orders, and resource allocation—to defeat a more powerful opponent who relied on detailed command techniques.

Command and Control at Chancellorsville

In December 1862, the Army of Northern Virginia, under Confederate GEN Robert E. Lee, defeated the Army of the Potomac at Fredericksburg, on the Rappahannock River between Washington, DC and Richmond, Virginia. The Union Army, under its new commander, MG Joseph Hooker, spent the winter of 1863 recovering. By spring, Hooker and his army of 134,000 were prepared to resume the offensive against Lee and his army of 60,000. "I not only expected victory, I expected to get the whole [Confederate] army," said Hooker of the Chancellorsville campaign. Instead, Chancellorsville became one of Lee's greatest victories.

Hooker planned an envelopment to place strong Union forces on Lee's flanks and rear. Three infantry corps would move up the Rappahannock, cross at Kelly's Ford, and move against Lee's rear. Two other corps would move against Lee's right flank. Combined with a Union cavalry corps moving behind Lee to cut off Confederate supplies and reinforcements, these actions would turn Lee out of Fredericksburg. However, fearing that the enemy might learn the details of his plan, Hooker withheld his intent from his subordinates. Instead he relied on detailed command techniques, an approach that prevented his subordinates from taking advantage of opportunities that could have led to victory.

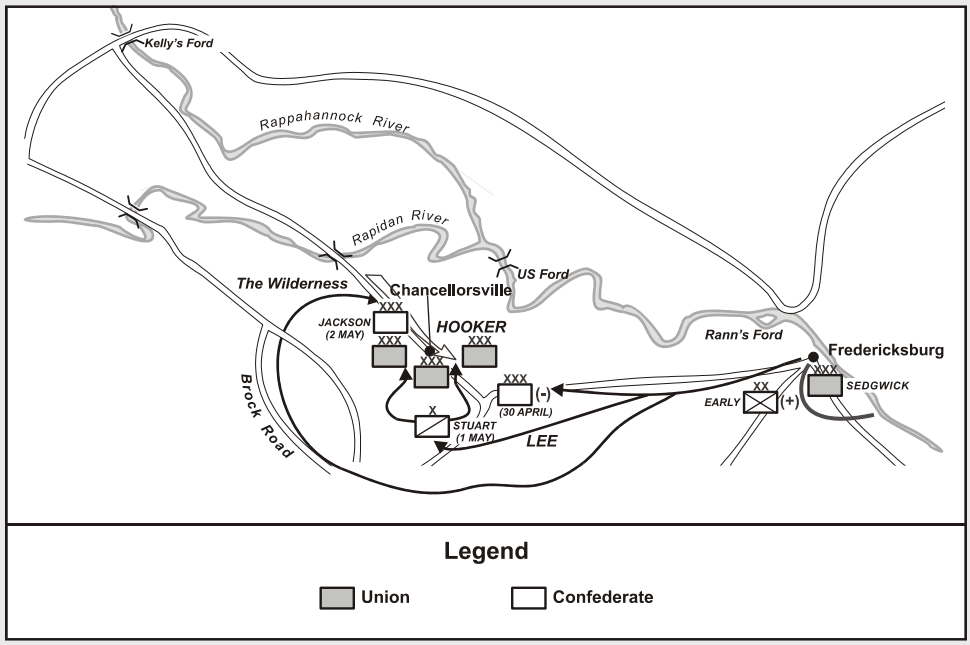
Initially, Union operations went according to plan. (See map 1-1.) Union disinformation, demonstrations, and feints initially misled Lee. By 29 April, Hooker had outmaneuvered him. The enveloping force had advanced to the road junction at Chancellorsville. A bridgehead below Fredericksburg was established, and 24,000 men under MG John Sedgwick were prepared to exploit it. However, events began to diverge from Hooker's commander's visualization, and his plan began to unravel.



Map 1-1. Chancellorsville—Hooker's Envelopment

By 1 May, Lee had recognized that the real threat was the enveloping force at Chancellorsville, not the Union cavalry corps moving to his south. Lee then made a bold decision: apparently violating the principle of mass, he divided his force. Even though outnumbered, Lee left one-third of his force to defend Fredericksburg, sending the rest to join BG "Stonewall" Jackson at Chancellorsville. Lee gave Jackson no specific orders, but made his intent clear: repulse the enemy and drive him back to the Rapidan. (See map 1-2.) Jackson's skirmishers denied the Union corps the ability to communicate, link up with one another, and provide mutual support. Hooker's close hold of his plans and intent was now particularly telling. The irresolute Sedgwick, isolated from the main action, had no idea what he was supposed to do. So, instead of fighting through the weak force facing him to fall on Lee's rear, he waited for clarifying orders. Assessing the situation that

afternoon, Hooker decided to fight a defensive battle, choosing the time and place of the encounter. He ordered the enveloping force to entrench around Chancellorsville and wait for Lee to attack.



Map 1-2. Chancellorsville—Lee's Counter

On 2 May, Lee realized Hooker's center was too entrenched for an assault, but that his right flank corps was open and unsupported. Lee again divided his force, deciding that the advantage of seizing the initiative and attacking merited the risk. Lee sent the bulk of his force with Jackson, who moved to envelop Hooker's right. Lee correctly calculated that Hooker, in his desire for a defensive battle, would do nothing.

Jackson came through the Wilderness, surprising and routing Hooker's right-flank corps. Jackson pushed on that night to prevent the enemy from recovering, but in the confusion was mortally wounded by friendly fire. Hooker, still intending to fight a defensive battle until Sedgwick was in position, ordered Sedgwick to come up on Lee's rear. Sedgwick, overly cautious, did not accomplish this task.

On 3 May, BG J.E.B. Stuart took over for Jackson. Lee's mission to Stuart was clear: drive the Union forces from Chancellorsville and reunite the two Confederate wings. Fierce fighting erupted to drive the Union forces from their positions. Hooker's defense around Chancellorsville was breached (at high cost to both sides), and the Confederate army reunited. Meanwhile, Sedgwick had overrun the Fredericksburg line, but ignorant of Hooker's intent, had not pursued the fleeing enemy.

A dawn reconnaissance on 4 May confirmed that Hooker had withdrawn to new defensive positions north of Chancellorsville. The day before, Hooker had suffered a head injury that may have clouded his judgment. Hooker did not interpret current situational developments accurately. He would not relinquish command and insisted that his defensive plans be carried out. His subordinates, not knowing Hooker's commander's intent, had no basis for acting without orders.

Confident that Hooker would not attack, Lee again divided his force, allocating 25,000 men to fix Hooker and sending the rest to clear the rear of Sedgwick. Sedgwick repelled this force but, thinking he was almost surrounded, retreated across the Rappahannock. Confronted with this, and having no contingency, Hooker abandoned his plan and withdrew his enveloping force.

Hooker believed he had planned well ("My plans are perfect, and when I start to carry them out, may God have mercy on Bobby Lee; for I shall have none"), and his numerical advantage should have compensated for many mistakes. However, his plan was too rigid and relied too much on expected reactions from Lee. Hooker withheld his intent from his subordinates until too late, thus denying them the ability to use their initiative. Lee, however, trusted his subordinates and confided his intent to them. He clearly assessed and adjusted to a situation as it unfolded, weighed the risks, and made bold decisions. Despite being outnumbered two to one, he divided his force three times, accepting the risk of being defeated in detail but allocating as much of his limited resources as possible to his decisive operation. Lee's orders were classic mission orders that allowed subordinates to exercise their initiative. He did not make these decisions recklessly, but only after carefully assessing timely intelligence, interpreting enemy actions, consulting with subordinates, and knowing his enemy's character.

CONCLUSION

1-89. Although the systems commanders use to exercise C2 have evolved throughout history, the fundamental nature of C2 is timeless. Improvements in technology, organization, and procedures may change the sophistication of C2, but they have not changed its importance. While these improvements appear to have increased the span of control, they have barely kept pace with the increasing dispersion of forces and complexity of military operations. Whatever the age or technology, the key to effective C2 is people using information to decide and to act wisely. Whatever the age or technology, the ultimate criterion of C2 success is always the same: acting faster and more effectively than the enemy to accomplish the mission at the least cost to the friendly force before the enemy can effectively act.

1-90. Army C2 doctrine calls for eliminating as much uncertainty as possible within the time available and managing whatever uncertainty remains. Mission command, a major aspect of this doctrine, uses decentralized execution to manage this uncertainty by distributing the handling of uncertainty throughout the force. This doctrine of command and control rests on a supporting doctrine of command and one for control. Chapter 2 discusses Army doctrine for command. The nature and science of control is the subject of chapter 3.